Defense Technology Office

Defense Cooperation in Armaments (DCA) in Japan

Agenda

- Defense Technology Office (DTO) Mission
- Japan Background
- DCA trends in Japan
- DTO strategy
- DTO activities
- Cooperative R&D Programs
- Challenges

Defense Technology Office (DTO) Mission

- Represent the Undersecretary of Defense for Acquisition, Technology and Logistics (USD/AT&L), the military departments (MILDEPs), and the U.S. Country Team to the Government of Japan (GOJ); serve as a primary source of information on Japan's defense R&D and acquisition activities
- Pursue and support arrangements for the Department of Defense (DoD) and Japan Defense Agency (JDA) to develop technologies and formulate systems acquisition strategies that support U.S. and bilateral strategic objectives
- Identify Japanese technology of potential benefit to DoD and facilitate access through government-to-government and government-to-industry liaison
- Identify potential U.S.-Japan cooperative R&D programs and facilitate effective communications for ongoing programs

Japan Background Data

Economy (JFY '05) ($1=￥111)

Source: CIA World Factbook

Population: 127 million
Population growth rate: 0.02%
GDP: $4.848 trillion
Per capita GDP: $30,700 (ppp)
Real Growth rate: 2.4%
Inflation: -0.2%
Gov't revenues: $1.429 trillion
Gov't expenditures: $1.775 trillion
Public debt: 170% of GDP

Armed Forces (JFY'05):

GSDF:	145,902
MSDF:	43,782
ASDF:	45,086
JSO/DIH:	2,322
Total AC:	237,092
Reserves:	47,900
(Active Res:	8,300)
Civilians:	23,527

Defense Expenditures (JFY '05)

Defense Budget: $43.514 billion
(equivalent to <1% of GDP)
Procurement: $6.992 Billion (16%)
R&D: $1.427 Billion (3.2%)
Host nation support: $4.55 Billion (10.4%)

Major Armed Forces Units (2005)

- Ground: 9 Divisions, 6 Bdes, 600 MBTs, 600 artillery, 85 AH-1s
- Maritime: 47 destroyers, 16 subs, 150 AC
- Air: 260 fighters, 90 other AC, 14 Early warning units

Common Equipment

F-15J Fighter
C-130 Transport
AWACS

SH-60J/UH-60J/UH-60JA Helicopter
AH-1S/AH-64D Attack Helicopters
CH-47J transport Helicopter
UH-1H/UH-1J Utility Helicopter
MH-53 AMCSM Helicopter
OH-6J/OH-6D Light Helicopter

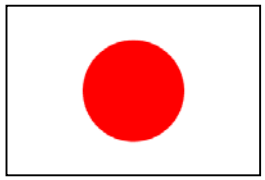
E2-C Hawkeye
P-3C/EP-3C
Link 11/16
GCCS/OED
SATCOM

M110A2 SP 8” Howitzer
120 Main Gun (German)
I-Hawk Air Defense System
Patriot Air Defense System
Multiple Launch Rocket System
TOW Anti-Armor Missile System

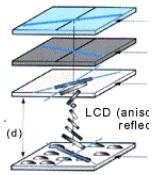
AIM/RIM-7F Sparrow Missile
AIM-9L Sidewinder Missile
AMRAAM

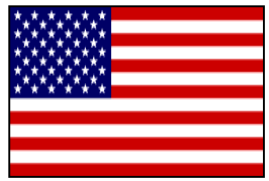
CIWS PHALANX
MK-46 Mod 5 Torpedo
Aegis Shipboard Air Defense system
Standard Missile
MK 41 Vertical Launch System
Harpoon Anti-Ship Missile
Vertical Launch ASROC (VLA)
MK 54 5” Naval Gun
MK 75 76 mm Naval Gun (Italian)
Naval Surge/Fire Control Radars

Combining Technological Strengths



Materials





Digital, Optical

Military technology

Displays

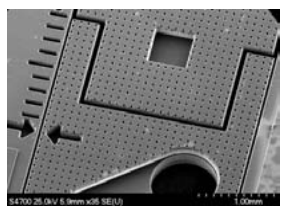
Software

Robotics

Systems Integration

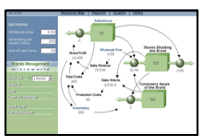
Miniaturization

MEMS
(Micro-Electronic Mechanical Systems)

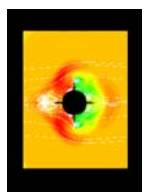


Aerospace

Simulations



Basic Research



Manufacturing

Japan's Changing DCA Landscape (1/2)

- Since 1967 - Arms exports not permitted to:
  - Communist Bloc countries
  - Countries to which arms exports are prohibited by UN resolution
  - Countries involved in or likely to become involved in international conflicts
- Since 1976, current GOJ policy is that:
  - Equipment and technology exclusively related to military use are considered as "arms"
  - Items with a valid commercial application are "commercial"
  - Restricts technology and hardware transfers to third countries
- Nov 1983: Japan agrees to permit the export of military technology to the U.S. as an exception, but not hardware

Japan's Changing DCA Landscape (2/2)

- Japan-US DCA has been primarily limited to joint research, but is transitioning to joint development and co-production
- Dec 03: Chief Cabinet Secretary announces Japan's adoption of Ballistic Missile Defense
- Dec 04: Chief Cabinet Secretary announces exceptions to arms export control policy
- June 06: Japan permits export to the US of equipment and technology related to BMD
  - Current BMD cooperative projects—AEGIS radar upgrade and Open Architecture, 21-inch interceptor

Ballistic Missile Defense (BMD) cooperation provides tremendous opportunities for bilateral technical exchange and cost-sharing

Why DCA with Japan?

- Important Security Partner—U.S. desires a closer relationship
- Japan strong in almost all militarily critical technologies
  - Leads U.S. in many areas such as Nanotechnology—Annual GOJ Nanotech Investment of $800 Million
- World's 2nd Largest Economy—GDP of $4.8 Trillion
- Annual R&D Expenditure of $160 Billion
- Holds 42% of All Foreign U.S. Patents—Standout #1
  - #2 is Germany at 9.1%
- Annual Defense Budget of $43 Billion
  - Greater than Germany, Italy, France, Canada

Objectives of DoD's Asia-Pacific DCA Strategy

- **Political**
  - Strengthen alliances and relationships
  - Promote international legitimacy in coalition operations
- **Operational**
  - Achieve interoperability for combined operations
  - Encourage acquisition of U.S. systems
- **Economic**
  - Reduce expenses for research, development, production, and support
- **Technical**
  - Ensure access to the best technologies
- **Industrial**
  - Bolster domestic and allied industrial bases

DTO Priorities

- Facilitate cooperative programs under the S&TF
  - Ballistic Missile Defense
  - New and mature programs
- Support service to service requirements
  - Data Exchange Agreements
  - Ground, Air and Maritime dialogues
- Support other DOD programs
  - Advanced Concept Technology Demonstrations (ACTD)
  - Foreign Comparative Testing (FCT)
  - Engineer and Scientist Exchange Program (ESEP)
  - Strategic Logistics
- Conduct technology search and coordinate industry matters

Cooperative R&D Programs

Completed Programs

- Ducted Rocket Engine (1999)
- Eye-safe Laser Radar (2001)
- Advanced Steel Technology (2001)
- ACES II Ejection Seat (2002)
- Ceramic Engine (2002)
- Low Vulnerability Ammunition (2003)
- Shallow Water Acoustics (2003)
- Advanced Hybrid Propulsion (2004)
- PX-MMA Interoperability Study (2004)
- Software Radio (JTRS) (2007)

Current Programs

- Ballistic Missile Defense Technology
- P-8A/P-X Interoperability Working Group
- Advanced Hull Materials & Structures Technology
- JP-4/JP-8 Toxicology
- Chemical, Biological, Nuclear and Radiological Defense

Data Exchange Annexes (DEAs)

- 33 active DEAs; 17 Maritime, 11 Ground, 5 Air

Engineer and Scientist Exchange Program (ESEP)

- Third Japanese researcher currently in the U.S.
- First US researcher currently in Japan

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